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PATENT ABSTRACTS OF JAPAN

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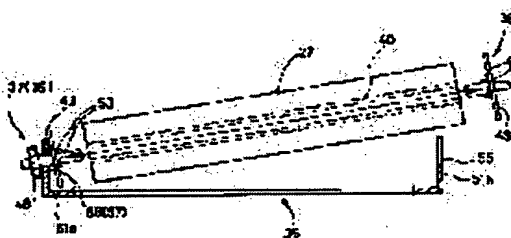
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(54) INK RIBBON CARTRIDGE

(57)Abstract:

PROBLEM TO BE SOLVED: To quickly load an ink ribbon to a case body such that the front or rear side and the winding side thereof are adequately positioned thereto.

SOLUTION: There are provided four spools 36-39 which are to be detachably attached to end sections of a pair of pipe bodies 40 for winding an ink ribbon 27 consisting of a band type sheet body having an ink layer formed on one face thereof. Each of spools 37, 39 having a gear 48 is rotatably fixed such that a circular hole 66 (67) provided on one side plate 51a of a case body 35 is nipped with a flange 43 and the gear 48 so that the spool may be hardly pulled out. Each of the other spools 36, 38 is detachably provided to a shaft supporting groove section 55 having an opening end formed on the other side plate 51b such that it is rotatably fixed to the side plate 51b.



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CLAIMS

[Claim(s)]

[Claim 1] A shell of a pair an ink ribbon which consists of a band-like sheet object with which it was wound around a shell of this pair, and an ink layer was formed in one field, and four spools with which an edge of a shell of this ink ribbon is equipped free [attachment and detachment] -- this -- a supporter of the axis-of-rotation section of four spools a circular hole drilled by one side plate among both-sides boards in which said cartridge main part carries out phase opposite, and which are the ink ribbon cartridges equipped with the above, and are set up -- a collar by the side of rolling up -- with a with spool a collar by the side of supply -- an axial support slot of an end open sand mold which equipped with a with spool impossible [loosely fitting and de**], and was formed in a side plate of said another side -- a collar by the side of rolling up -- a with spool and a collar by the side of supply -- it is characterized by constituting so that a with spool may be made to fit in loosely removable.

[Claim 2] Two engagement slots are formed in a total of four end faces of a shell of said pair, respectively, and two engagement slots in one end face, and two engagement slots in other three end faces among said four end faces It is set up so that it may be different in a main angle with an axial center of a shell to make. To said four spools Two engagement pawls which can fit into two engagement slots in an end face of said shell are formed, respectively. Two engagement pawls in one spool among spools with which fall out to one [said] side plate, and impossible is equipped An ink ribbon cartridge according to claim 1 characterized by being set up so that it may be different from two engagement pawls in other three spools in a main angle with an axial center of a spool to make.

[Claim 3] A spool with which falls out to one [said] side plate, and impossible is equipped is an ink ribbon cartridge according to claim 1 or 2 characterized by being constituted disengageable by said flange and the outer case section which has a gear in the opposite side on both sides of the container liner section which has said flange, and said side plate.

[Claim 4] A diameter of a shank which fits into a circular hole of a side plate in one spool between two spools with which fall out to one [said] side plate, and impossible is equipped is an ink ribbon cartridge according to claim 1 to 3 characterized by forming in a major diameter from a diameter of a shank which gets into said circular hole or an axial support slot in three spools of above others.

[Claim 5] Color adhered or applied to one spool between two spools with which fall out to one [said] side plate, and impossible is equipped is an ink ribbon cartridge according to claim 1 to 4 characterized by setting up so that it may differ from color adhered or applied to three spools of above others.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates to the structure of the ink ribbon cartridge equipped with the exchangeable broad ink ribbon for using it for recording devices, such as a printer.

[0002]

[Description of the Prior Art] When printing in a regular paper etc. using a thermal printer, an ink ribbon cartridge is usually used triggered by the ease of exchange, and the simplicity of handling. And when a thermal printer is a line printer, the broad ink ribbon is used. generally, an ink ribbon is wound around the shell as the heart at a supply and rolling-up side -- having -- the edge of each of that shell -- a collar - - although it has the with spool (a total of four pieces), if spools are also exchanged for every exchange of the consumed ink ribbon, since it will become a waste of a resource, while once removing a spool from an old ink ribbon at the time of exchange and equipping the shell of a new ink ribbon again, equipping an ink ribbon cartridge is performed.

[0003] By the way, the ink layer is formed in one side of the sheet object of the shape of a double-width film, and an ink ribbon must be arranged to an ink ribbon cartridge so that this ink layer and the form which is a record medium-ed may meet. Therefore, it is necessary to equip an ink ribbon cartridge so that the field which has said ink layer may be on a right side on the occasion of exchange of an ink ribbon. Moreover, although these two spools are equipped with the gear since it is generally necessary to carry out the rotation drive of the spool located in an ink ribbon's rolling-up and supply side in response to predetermined power, the spool with these gears must also be set to the predetermined part of an ink ribbon cartridge.

[0004] the central angle with the axial center of the shell of two engagement slots as for which these people did notch formation in Japanese Patent Application No. No. 217 [nine to] previously as a device for that in the both-ends side of each shell as the heart by the side of supply of an ink ribbon, and rolling up, respectively to make -- whenever can be set to one end face among four end faces -- it set up so that only a thing might be different from other three things. and four collars which engage and release the end face of each of said shell -- a with spool It is what projects and forms an engagement pawl so that it may get into said two engagement slots respectively. therefore, one specific collar -- two engagement pawls in a with spool (for example, spool in one of the two by the side of rolling up) -- other three collars -- the axial center of a spool, and the central angle made with two engagement pawls in a with spool -- it set up so that whenever might be different.

[0005] It sets up so that the diameter of one specific shank may become larger than the thing diameter which is three of another side among with (with no gear) spools. moreover and said four collars -- Only the part corresponding to said specific spool of the diameter of the circular hole of the shape of 2 rates for being formed in one side plate of an ink ribbon cartridge, and supporting the shank of said the spool of each pivotable was large, and the diameter of the circular hole of the three shape of other 2 rates set it as the same small path.

[0006] Since said specific spool can be attached only in the specific part of the barrels of an ink ribbon and it moreover becomes impossible by these configurations for this specific spool to be able to equip only the circular hole of the specific part of an ink ribbon cartridge, and to fit into other three circular holes, the wearing incorrect ball of reverse anchoring of the existence (front reverse side) of the ink layer of an ink ribbon and the ink ribbon to an ink ribbon cartridge is not generated.

[0007]

[Problem(s) to be Solved by the Invention] However, even if it was said conventional configuration, when discovery of the combination of said specific spool and the specific wearing part in an ink ribbon cartridge needed to be repeated by trial and error, therefore time and effort was taken for every exchange of a new ink ribbon and the activity started for a long time, there was a problem that the danger of ***** (ing) and damaging to an ink ribbon also became high.

[0008] This invention is proposed in view of the above-mentioned trouble, and aims at offering the ink ribbon cartridge which can perform exchange of an ink ribbon correctly and quickly with easy structure.

[0009]

[Means for Solving the Problem] In order to attain said purpose, an ink ribbon cartridge of invention indicated to claim 1 An ink ribbon which consists of a band-like sheet object with which it was wound around a shell of a pair, and a shell of this pair, and an ink layer was formed in one field, Four spools with which an edge of a shell of this ink ribbon is equipped free [attachment and detachment], It is the ink ribbon cartridge constituted with a cartridge main part equipped with a supporter of the axis-of-rotation section of four spools. this -- a circular hole drilled by one side plate among set-up both-sides boards in which a cartridge main part carries out phase opposite -- a collar by the side of rolling up -- with a with spool a collar by the side of supply -- an axial support slot of an end open sand mold which equipped with a with spool impossible [loosely fitting and de**], and was formed in a side plate of said another side -- a collar by the side of rolling up -- a with spool and a collar by the side of supply -- it constitutes so that a with spool may be made to fit in loosely removable.

[0010] Invention according to claim 2 is set to an ink ribbon cartridge according to claim 1. Moreover, to a total of four end faces of a shell of said pair Two engagement slots are formed, respectively and two engagement slots in one end face, and two engagement slots in other three end faces among said four end faces It is set up so that it may be different in a main angle with an axial center of a shell to make. To said four spools Two engagement pawls which can fit into two engagement slots in an end face of said shell are formed, respectively. Among spools with which fall out to one [said] side plate, and impossible is equipped, two engagement pawls in one spool are set up so that two engagement pawls in other three spools may be different in a main angle with an axial center of a spool to make.

[0011] And a spool with which escapes from invention according to claim 3 to one [said] side plate in an ink ribbon cartridge according to claim 1 or 2, and impossible is equipped is constituted disengageable by said flange and the outer case section which has a gear in the opposite side on both sides of the container liner section which has said flange, and said side plate. Furthermore, invention according to claim 4 forms in a major diameter a diameter of a shank which fits into a circular hole of a side plate in one spool between two spools with which fall out to one [said] side plate, and impossible is equipped in an ink ribbon cartridge according to claim 1 to 3 from a diameter of a shank which gets into said circular hole or an axial support slot in three spools of above others.

[0012] Furthermore, color adhered or applied to one spool between two spools with which escape from invention according to claim 5 to one [said] side plate in an ink ribbon cartridge according to claim 1 to 4, and impossible is equipped is set up so that it may differ from color adhered or applied to three spools of above others.

[0013]

[Embodiment of the Invention] Next, the gestalt of desirable operation of this invention is explained concretely, referring to a drawing. For the sectional side elevation of the facsimile apparatus 1 with which drawing 1 uses the ink ribbon cartridge 24 of this invention, and drawing 2, the plan of the ink ribbon cartridge 24 and drawing 3 are [right lateral drawing of drawing 2 and drawing 4 (b) of the inferior surface of tongue of the ink ribbon cartridge 24 and drawing 4 (a)] left lateral drawings of

drawing 2 .

[0014] First, an approximate account is carried out about the structure of facsimile apparatus 1. In addition, the facsimile apparatus 1 of this example reads an image etc. in a manuscript 8. Receive the facsimile data transmitted from other facsimile apparatus through the telephone line while transmitting to other facsimile apparatus through the telephone line which is one of the communication lines by using the image data as facsimile data, and form the image in the record form 4. It has a function as a printer which forms an image according to the data in response to the print data transmitted through wireless, such as a printer cable or infrared radiation, from others, a personal computer, a word processor, etc. as usual facsimile apparatus. [function]

[0015] The ear receiver which is not illustrated is arranged and the control panel 3 which has key switch 3a, liquid crystal display 3b, etc. is formed in the upper surface anterior part of a main part 2 at the 1 side of the main part 2 of facsimile apparatus 1. Moreover, the upper surface of a main part 2 is establish in the feed guide section 5 of a left Uichi pair for carry out the laminating of the record form 4, and lay it in the upper surface posterior part of a main part 2, after the shape of slanting facing down has stand at the rear face of the rotatable covering object 6 of a wrap sake, and the main part 2 upper surface order halfway section is equip with the manuscript base 7 removable.

[0016] the feed roller pair for conveying the manuscript 8 from said manuscript base 7 in a main part 2 in the lower part location of said control panel 3 -- 9, the original cover object 11 arranged to its adhesion mold image scanner section (CIS) 10 and read station up side, and a delivery roller pair -- 12 is arranged. Moreover, it has the feed section 14 which consists of the feed roller 15 for conveying one sheet of record form 4 from the feed opening 13 at a time, a separation pad 16 energized by means of a spring by the bottom peripheral surface, and a press object 17 which presses the record form 4 by which the laminating was carried out in the conveyance upstream rather than this separation pad 16 to the peripheral surface of the feed roller 15 under said feed guide section 5.

[0017] The ink ribbon cartridge 24 arranged so that the printing base 23 and this printing base 23 of the thermal head 22 energized with the spring 21 toward the platen 20 of the shape of a roller as the Records Department and the inferior surface of tongue of this platen 20 may be straddled is arranged at the lower part of this feed section 14. The ink ribbon 27 wound around the front rolling-up side ribbon spool 26 from the supply side ribbon spool 25 of the back in the ink ribbon cartridge 24 passes through the upper surface of a thermal head 22 and the tension object 28 made from a leaf, and results in the bottom peripheral surface side of the rolling-up side ribbon spool 26. At this time, the ink side (ink layer) of an ink ribbon 27 is located on the upper surface, and after a platen 20 and a thermal head 22 are printed in the printing section which carries out a polymerization, the record form 4 which laps with the upper surface (ink side) of an ink ribbon 27 is constituted through the delivery path 30 and delivery roller pair 31 so that paper may be delivered on the delivery unit 32 of said feed section 14 top.

[0018] Next, the configuration of the ink ribbon cartridge 24 concerning this invention is explained, referring to drawing 2 - drawing 7 . This ink ribbon cartridge 24 is constituted by the case object 35 as a cartridge main part, an ink ribbon 27, the supply side spools 36 and 37 of the left Uichi pair as a supply side ribbon spool 25, and the rolling-up side spools 38 and 39 of the left Uichi pair as a rolling-up side ribbon spool 26. Said each spools 36, 37, 38, and 39 are formed in one with injection molding of for example, synthetic-resin material etc.

[0019] An ink ribbon 27 forms an ink layer in whole one side of a double-width resin film, and as shown in drawing 2 , it is wound around the shells 40 and 41 of the shape of a cylinder, such as a product made of paper of a pair. The image of one line is formed at a time in the record form 4 by putting by the platen 20 and the recording surface of the thermal head 22 which is a line printer, as the record form 4 is made to meet the ink layer of an ink ribbon 27, and energizing to the heating element of a thermal head 22 according to image data.

[0020] As shown in drawing 2 , the supply side right spool 36 which fits into each right end of the shell 40 by the side of supply, and the shell 41 by the side of rolling up, and the rolling-up side right spool 38 The container liner section 42 which is the same configuration as shown in drawing 3 , drawing 5 (a), and drawing 5 (b), and fits into the right edge bore of said shell 40 (41), It is constituted by the shaft 44

outside the shape of a cylinder of the minor diameter as the flange 43 of a major diameter, and a support shank arranged free [rotation] to the case object 35 mentioned later. and in the root part of the container liner section 42 and a flange 43 Two engagement pawls 45 and 45 which fit into two engagement slots 60 and 60 (refer to drawing 3 which is a bottom view) by which notch formation was carried out at the end face of a shell 40 (41), and which are mentioned later, and serve as a baffle project, and are formed. Two or more protrusion formation of the protruding line 46 long in the direction of an axis for slip prevention is suitably carried out at the gap at the circumferencial direction at the peripheral face of the outside shank 44.

[0021] The supply side left spool 37 which fits into each left end of the shell 40 by the side of supply, and the shell 41 by the side of rolling up, and the rolling-up side left spool 39 The container liner section 42 which fits into the left end section bore of said shell 40 (41), and the flange 43 of a major diameter, It is constituted by support shank 47a (47b) arranged free [rotation] to the case object 35 which prepares in the outside of this flange 43 and is mentioned later, and the outer case section 49 of the shape of a cylinder with gear section 48 prepared in the outside of this support shank 47a (47b). And two engagement pawls 50 and 50 which fit into two engagement slots 61 and 61 (refer to drawing 3 which is a bottom view) by which notch formation was carried out at the end face of said shell 40 (41), and which are mentioned later, and serve as a baffle are projected and formed in the peripheral face of each of said container liner sections 42 and 42.

[0022] In addition, the inside of every two engagement slots 60, 60, 61, and 61 formed in four end faces in said two shells 40 and 41, One specific engagement slots [two] (for example, part which fits into said rolling-up side left spool 39) 61 and 61 The main angle which sandwiches the axis of shells 40 and 41 is made into about 120 degrees, and every three engagement slots [two] 60, 60, 61, and 61 of other set the main angle which sandwiches the axis of shells 40 and 41 as 180 degrees. Two engagement pawls 50 and 50 in said one specific spool 39, for example, said rolling-up side left spool, so that it may correspond to this the central angle which sandwiches the axis of the container liner section 42 -- whenever [theta] -- every two engagement pawls [in / 2 is made into about 120 degrees (refer to drawing 8 (b)), and / other three spools 36, 37, and 38] 45, 45, 50, and 50 -- among those, the central angle which sandwiches the axis of a cylinder part 42 -- whenever [theta] -- 1 is set as 180 degrees (refer to drawing 5 (b)).

[0023] Thus, when constituted, only the part of the specific end face (in the example, it sets to drawing 2, and is the lower left) in said two shells 40 and 41 can be equipped with said rolling-up side left spool 39 as a specific spool. In addition, since the main angle theta 1 of two engagement pawls 45 and 45 and two engagement pawls 50 and 50 of other three spools 36, 37, and 38 is equal, they can be inserted in three edges other than said specific edge in two shells 40 and 41.

[0024] The supply side left spool 37 in drawing 2 as a spool with the gear and the rolling-up side left spool 39 get into the left end of shells 40 and 41, and are constituted by the container liner section 42 equipped with said flange 43, and the outer case section 49 equipped with the gear 48 disengageable. When this configuration is explained further in full detail, referring to drawing 7 (a), drawing 7 (b), drawing 8 (a), and drawing 8 (b), in the root section with the flange 43 of the container liner section 42 As mentioned above, two engagement pawls 50 and 50 are projected in one, and two anchoring holes 63 and 63 penetrated to radial are drilled in said root section (see drawing 8 (a) and drawing 8 (b)). And on both sides of the flange 43, the diameter is formed more greatly outside support shank 47a [in / in the direction of support shank 47b in the rolling-up side left spool 39 as a specific spool / the supply side left spool 37] than a diameter outside said engagement pawl 50 and the support shank which is a cylinder part of the opposite side (refer to drawing 4 (b)).

[0025] On the other hand, in the outer case section 49, it has the arms 64 and 64 of the pair which fits into the bore of each of said support shank 47a (47b), and the stop pawl 65 which can stop to said anchoring hole 63 is formed at the tip of each of this arm 64 in one outward [radius] at it. If that elasticity is resisted in the arms 64 and 64 of the outer case section 49 and it fits into the bore of the support shank 47 of the container liner section 42 by this configuration, the stop pawl 65 is stopped by the anchoring hole 63, and has carelessly inseparable structure.

[0026] Next, the configuration of the case object 35 as a cartridge main part is explained with reference to drawing 2 - drawing 4 , and drawing 6 . The case object 35 the winding section bottom by the side of supply of an ink ribbon 27 Supply side arm-top-cover section 35a of the right-and-left straight side of a wrap sake, The winding section bottom by the side of rolling up of an ink ribbon 27 Rolling-up side arm-top-cover section 35b of the right-and-left straight side of a wrap sake, It is constituted by the connection pieces 52 and 53 which form successively the right-and-left both sides of these supply side arm-top-cover section 35a and rolling-up side arm-top-cover section 35b of right-and-left straight side, and right-and-left both-sides Itabe 51a, 51a, 51b, and 51b, for example, is formed in one by injection molding of synthetic-resin material. Therefore, the part surrounded by supply side arm-top-cover section 35a, rolling-up side arm-top-cover section 35b of right-and-left straight side, and the connection pieces 52 and 53 of right-and-left both sides serves as the window part 54 which an ink ribbon 27 exposes, the roller-like platen 20 overlooks it from this window part 54 bottom, and the printing base 23, a thermal head 22, and the tension object 28 overlook it from the lower part of a window part 54.

[0027] And in drawing 2 , as shown in drawing 4 (a) and drawing 6 (a), the axial support slot 55 of an end open sand mold into which the outside shafts 44 and 44 as a support shank in the supply side right spool 36 with which the right edge in two shells 40 and 41 was equipped free [attachment and detachment], and the rolling-up side right spool 38 fit loosely, respectively is formed in right-hand side side plate 51b. Notch formation of the axial support slot 55 of this end open sand mold is carried out so that downward disconnection of the lower limit section may be carried out. By moreover, the circle-like elasticity disconnection slot 56 which met at the circumferencial direction at the periphery side from the axial support slot 55 by which notch formation was carried out at each right side plate 51b and the elasticity disconnection slot 57 long to radius outwardness Although the width-of-face size between lower disconnection *****55a of each axial support slot 55 and 55a is elastically extended when pushing in each ***** 44 upward in the condition that the axis carries out abbreviation decussation to said axial support slot 55 In the free condition, the width-of-face size between lower disconnection *****55a of each axial support slot 55 and 55a is smaller than the diameter of each ***** 44 so that each ***** 44 may not have dedropping to each axial support slot 55 (refer to drawing 6 (a)).

[0028] On the other hand, in drawing 2 , as shown in drawing 4 (b), the round hole 66 into which support shank 47a in the supply side left spool 37 with which the left end section in two shells 40 and 41 was equipped free [attachment and detachment] may fit loosely, and the round hole 67 into which support shank 47b in the rolling-up side left spool 39 may fit loosely are drilled in left-hand side side plate 51a, respectively. And although the diameter of a round hole 67 is greatly formed from a round hole 66 and support shank 47b in the rolling-up side left spool 39 can fit loosely into said round hole 67, each diameter is set to the round hole 66 so that it may not enter.

[0029] When exchange of the ink ribbon 27 by this configuration is explained, first In order to equip the part of the round hole 67 in left side plate 51a with the rolling-up side left spool 39 as a specific spool with the gear If the arm 64 of the outer case section 49 with gear 48 is inserted in the bore section of said support shank 47b from the outside of left side plate 51a after making a flange 43 approach inside left side plate 51a and inserting support shank 47b of the container liner section 42 in a round hole 67 The stop pawl 65 at the tip of each arm 64 stops to the anchoring hole 63 in the container liner section 42, and the rolling-up side left spool 39 ceases to separate from side plate 51a.

[0030] Subsequently, after making the flange 43 of the container liner section 42 in the supply side left spool 37 which is the spool with the gear approach and inserting support shank 47a in a round hole 66, If the arm 64 of the outer case section 49 with gear 48 is inserted in the bore section of said support shank 47a from the outside of left side plate 51a, the stop pawl 65 at the tip of each arm 64 will stop to the anchoring hole 63 in the container liner section 42, and will cease to separate also from the supply side left spool 37.

[0031] And since only the location of the round hole 67 which is the specific part of left side plate 51a can be equipped with the rolling-up side left spool 39 which has large support shank 47b of a diameter and other parts cannot be equipped, the stowed position to the case main part 35 of the specific one spool 39, for example, a rolling-up side left spool, will be pinpointed (refer to drawing 3 and drawing 4

(b)). Since the main angles θ_2 with the axial center of two engagement pawls 50 and 50 in this rolling-up side left spool 39 to make are 120 degree abbreviation, they can insert in only two engagement slots 61 and 61 (central angle thing of 120 degree abbreviation) in an ink ribbon 27 where while was formed in the left end of a shell 41.

[0032] On the other hand, since the main angle θ_1 with the axial center of two engagement pawls 50 and 50 in the supply side left spool 37 with the gear to make is 180 degrees, it can insert in only two engagement slots 60 and 60 (central angle whenever thing of 180 degrees) formed in the left end of the shell 40 of another side in an ink ribbon 27. Thereby, without mistaking the front reverse side and the rolling-up direction of an ink ribbon 27, the physical relationship of the left-hand side of the ink ribbon 27 concerned and the left-hand side of the case main part 35 can be made to be able to specify, and it can equip.

[0033] Moreover, since the diameter of support shank 47a in the supply side left spool 37 which is a spool with these gears, and the rolling-up side left spool 39, and support shank 47b is smaller than the diameter of the anchoring holes 66 and 67, it cannot be right-angled and can make the axis of each spools 37 and 39 incline to side plate 51a, as shown in drawing 9 and drawing 10. Therefore, it can equip, without choking these supply side arm-top-cover section 35a and rolling-up side arm-top-cover section 35b with the outer diameter of winding of an ink ribbon 27, without removing the supply side left spool 37 and the rolling-up side left spool 39 from the case main part 35 in the condition of having placed supply side arm-top-cover section 35a of the case main part 35, and rolling-up side 35b upside down, as shown in drawing 10.

[0034] Next, what is necessary is to equip with any of the supply side right spool 36 which has a main angle with the same engagement pawls 45 and 45, and the rolling-up side right spool 38 to the right-hand side of the shells 40 and 41 of said ink ribbon 27, and just to push in the portion of a shaft 44 after this to each axial support slots 55 and 55 in right side plate 51b of the case main part 35 outside the supply side right spool 36 and the rolling-up side right spool 38.

[0035] If it equips with the ink ribbon cartridge 24 of the above-mentioned configuration to the right-and-left both sides of the main part frame (not shown) of facsimile apparatus 1, the connection piece 52 of the right-and-left both sides of the case object 35 as a cartridge main part and the part of 53 grades will be supported with a predetermined posture. While being supported pivotable by the shank which protruded on said main part frame side which the bore section of the outer case sections 49 and 49 in the rolling-up side left spool 39 and the supply side left spool 37 does not illustrate at this time While the gear sections 48 and 48 gear on the gear for power transmission (not shown), respectively, they insert the bore section of the outside shafts 44 and 44 in the supply side right spool 36 and the rolling-up side right spool 38 in the shank (not shown) which protruded in the direction of an axis flexibly from said main part frame side.

[0036] Thereby, as shown in drawing 4 (b), the support shanks 47a and 47b in said rolling-up side left spool 39 and the supply side left spool 37 are mostly arranged in the shape of a concentric circle to the inner skin of each round holes 66 and 67 in left side plate 51a of the case object 35. Moreover, as shown in drawing 4 (a), the outside shafts 44 and 44 which project on the right-hand side of the case object 35 are mostly arranged in the shape of a concentric circle with the inner skin of each axial support slot 55 in right side plate 51b, and to the inner skin of each axial support slot 55, it interferes in the protruding line 46 for all slip prevention of the periphery of each **** 44 and 44, it is twisted (it does not ****), and is arranged like.

[0037] Consequently, the supply side ribbon spool 25 and the rolling-up side ribbon spool 26 may rotate smoothly. On the other hand, when a user floats in midair, as he shows the case object 35 as a cartridge main part to drawing 6 (a), the outside shafts 44 and 44 in the supply side right spool 36 and the rolling-up side right spool 38 slip down with the self-weight of ink ribbon 27 grade in the lower disconnection ****55a [of each axial support slot 55 in side plate 51b], and 55a side, in order to take out the ink ribbon cartridge 24 from facsimile apparatus 1. Consequently, since the protruding line 46 in the peripheral face of each **** 44 is caught in lower disconnection **** 55a and 55a which intersect the inner skin of the shape of a circle of each axial support slot 55, spools 36 and 38 do not rotate carelessly

and do not have greatly the flabby ink ribbon 27 currently wound around these spools.

[0038] in addition, when supply side arm-top-cover section 35a and rolling-up side arm-top-cover section 35b are turned up and said ink ribbon cartridge 24 is laid in a table (not shown) etc. The result in which each axial support slot 55 in side plate 51b falls with the self-weight of the case object 35 as a cartridge main part to the outside shafts 44 and 44 in said supply side right spool 36 and the rolling-up side right spool 38, Since the protruding line 46 of said outside shaft 44 periphery is caught in a decussation edge with the elasticity disconnection slot 57 of the circular inner skin top of each axial support slot 55 concerned, spools 36 and 38 do not rotate carelessly and an ink ribbon 27 does not slacken [spools] greatly at this time.

[0039] Even if it turns supply side arm-top-cover section 35a and rolling-up side arm-top-cover section 35b down and laying in a table (not shown) etc. carries out them, spools 36 and 38 do not rotate said ink ribbon cartridge 24 like the above. Drawing 8 (b) expands and shows an example of the configuration of said protruding line 46. Thus, when an operator has by hand further when an ink ribbon cartridge is alone left on a table etc., when detaching and attaching to a printer, and it swings, the spool which is winding the ink ribbon does not rotate greatly carelessly to a cartridge, but it can prevent that an ink ribbon slackens.

[0040] As a means to enable it to equip with the rolling-up side left spool 39 as a specific spool to the predetermined part of the case main part 35 as said cartridge main part, without mistaking a location Or boil all, and it colors or paints. the aforementioned configuration -- replacing with -- or said configuration -- in addition, a part of external surface of the part which has the round hole 67 of said side plate 51a, insides, or both sides -- in a specific color (for example, red) While also coloring or painting the corresponding spool 39 in the same color as the part thru/or all, other three spools 36-38 are colored or painted in green etc. at the part thru/or all (a different color from said red). And if red also colors or paints the left end of a shell 41, an operator can do very simply correcting the front reverse side and the rolling-up direction, and equipping the case main part 35 as a cartridge main part with an ink ribbon 27 by arrangement of the same portions (components) of a color. In addition, you may make it color or paint in the color from which the left right-hand side board of a case main part also differs.

[0041] In addition, since the spools 36-39 of right-and-left both sides are removed from the shells 40 and 41 which wound the ink ribbon 27 on the occasion of exchange of a used ink ribbon and it is again changed and made to a new thing, it is very economical. With the above-mentioned operation gestalt, although the ink ribbon cartridge of this invention was used for facsimile apparatus, of course, it cannot restrict to this and can use for a printer, a copying machine, or the device equipped with two or more of those functions.

[0042]

[Effect of the Invention] The ink ribbon cartridge of invention it was indicated to claim 1 that explained above The ink ribbon which consists of a band-like sheet object with which it was wound around the shell of a pair, and the shell of this pair, and the ink layer was formed in one field, Four spools with which the edge of the shell of this ink ribbon is equipped free [attachment and detachment], It is the ink ribbon cartridge constituted with the cartridge main part equipped with the supporter of the axis-of-rotation section of four spools. this -- the circular hole drilled by one side plate among the set-up both-sides boards in which a cartridge main part carries out phase opposite -- the collar by the side of rolling up -- with a with spool the collar by the side of supply -- the axial support slot of the end open sand mold which equipped with the with spool impossible [loosely fitting and de**], and was formed in the side plate of said another side -- the collar by the side of rolling up -- a with spool and the collar by the side of supply -- it constitutes so that a with spool may be made to fit in loosely removable.

[0043] therefore, the collar by the side of rolling up with which the part of the round hole in a cartridge main part which while drilled in the side plate is equipped -- a with spool and the collar by the side of supply -- since the with spool escapes from the cartridge main part concerned and is impossible, it is necessary not to repeat discovery of the combination of said specific spool and the specific wearing part in a cartridge main part by trial and error, and the effect that exchange of an ink ribbon can perform quickly does so for every exchange of a new ink ribbon. Consequently, the effect that the danger of

***** (ing) and damaging to an ink ribbon on the occasion of exchange also decreases also does so.

[0044] Invention according to claim 2 is set to an ink ribbon cartridge according to claim 1. Moreover, to a total of four end faces of the shell of said pair Two engagement slots are formed, respectively and two engagement slots in one end face, and two engagement slots in other three end faces among said four end faces It is set up so that it may be different in the main angle with the axial center of a shell to make. To said four spools Two engagement pawls which can fit into two engagement slots in the end face of said shell are formed, respectively. Among the spools with which fall out to one [said] side plate, and impossible is equipped, two engagement pawls in one spool are set up so that two engagement pawls in other three spools may be different in the main angle with the axial center of a spool to make.

 [0045] Thus, if constituted, since wearing only in the specific part of the four edges of the shell of the pair in an ink ribbon will be attained in the specific spool of four spools, the effect of becoming in addition to the effect by said invention according to claim 1, without mistaking the location to the front reverse side of an ink ribbon and the cartridge main part by the side of rolling up is done so.

[0046] And the spool with which escapes from invention according to claim 3 to one [said] side plate in an ink ribbon cartridge according to claim 1 or 2, and impossible is equipped is constituted disengageable by said flange and the outer case section which has a gear in the opposite side on both sides of the container liner section which has said flange, and said side plate. Thus, with the flange and gear of a major diameter, since a side plate is inserted, once it equips the round hole of a side plate with the spool, it will become omission impossible from the shank which will get into the round hole part of a side plate if constituted. Moreover, since the spool is divided into said container liner section and outer case section, the effect that wearing to a round hole can be simplified very much in addition to the effect by invention according to claim 1 or 2 is done so.

[0047] Furthermore, invention according to claim 4 forms in a major diameter the diameter of the shank which fits into the circular hole of the side plate in one spool between two spools with which fall out to one [said] side plate, and impossible is equipped in an ink ribbon cartridge according to claim 1 to 3 from the diameter of the shank which gets into said circular hole or the axial support slot in three spools of above others.

[0048] Thus, it can perform simply determining uniquely arrangement with the specific part in a cartridge main part, and a specific spool by enlarging one diameter of a round hole and setting it as the major diameter to which the shank of one specific spool cannot fit into other three round holes, either, and moreover, once it equips a round hole, since it cannot remove easily, the effect that exchange of an ink ribbon becomes easy will be done so.

[0049] Furthermore, replace invention according to claim 5 with the aforementioned configuration according to claim 1 to 4, or it is added to said configuration. The color adhered or applied to one spool between two spools with which fall out to one [said] side plate, and impossible is equipped By setting up so that it may differ from the color adhered or applied to three spools of above others, it is easy actuation of fitting in or equipping with the portion thru/or components of the same color, and the effect that the combination of the specific part of a cartridge main part and a specific spool is made is done so.

[Translation done.]

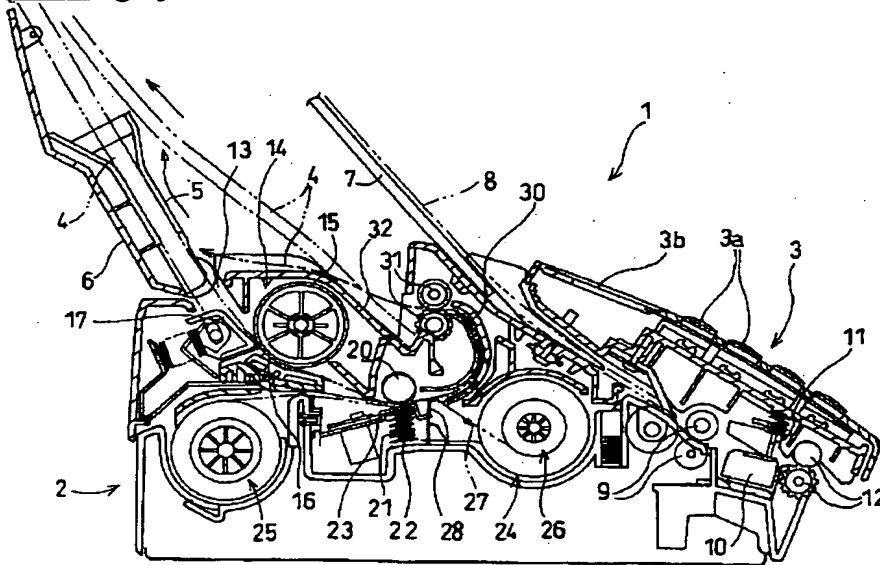
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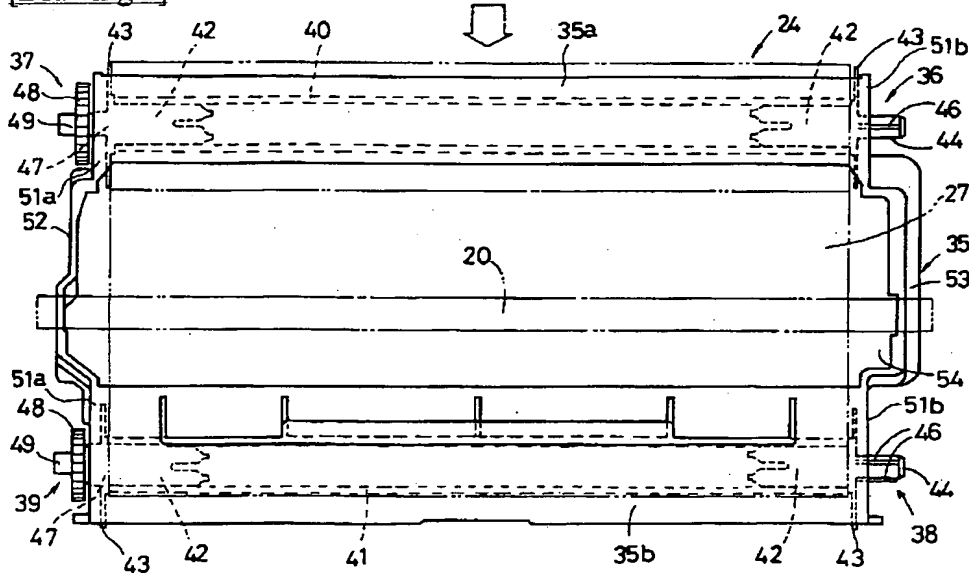
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3. In the drawings, any words are not translated.

DRAWINGS

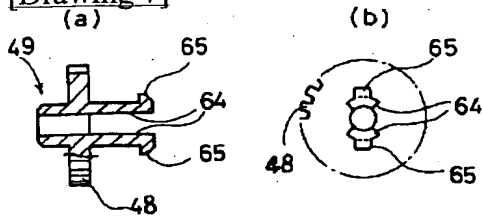
[Drawing 1]



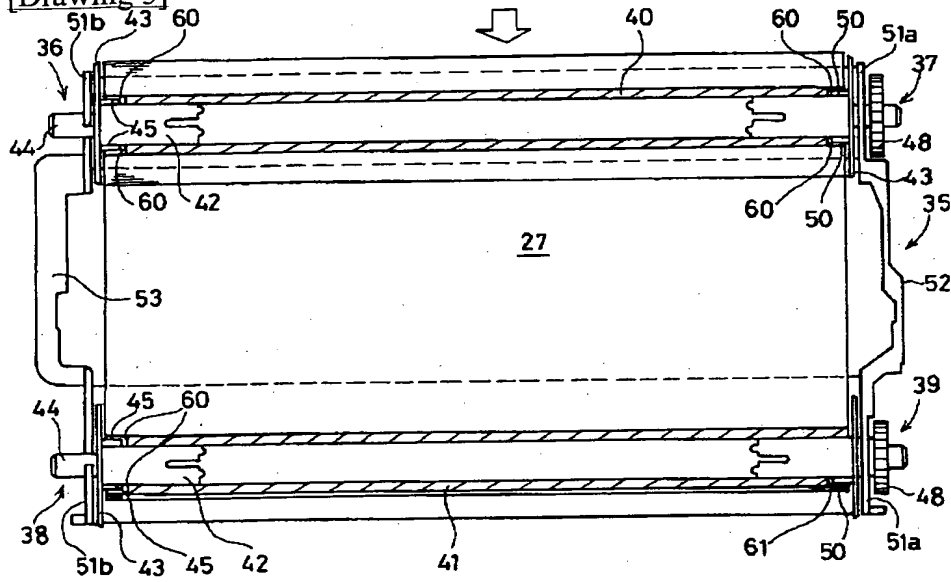
[Drawing 2]



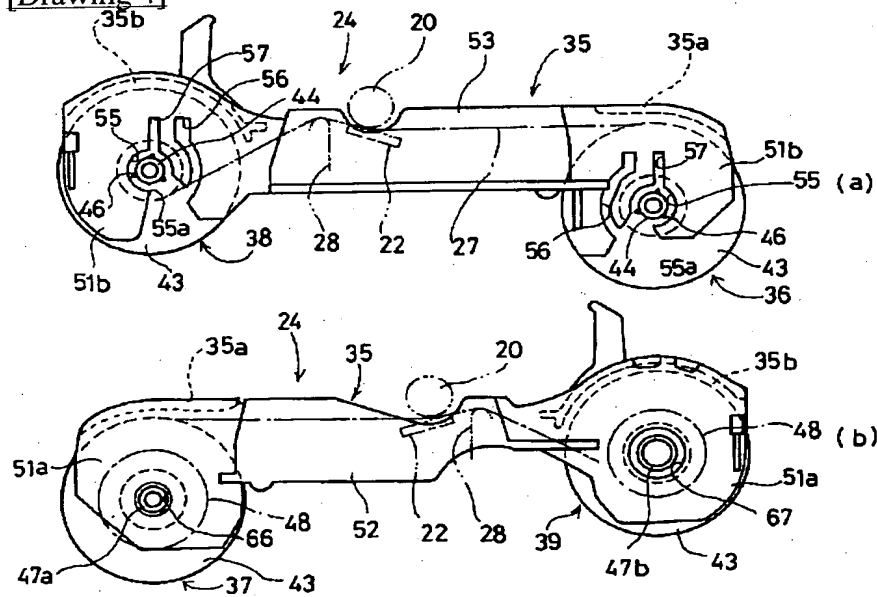
[Drawing 7]



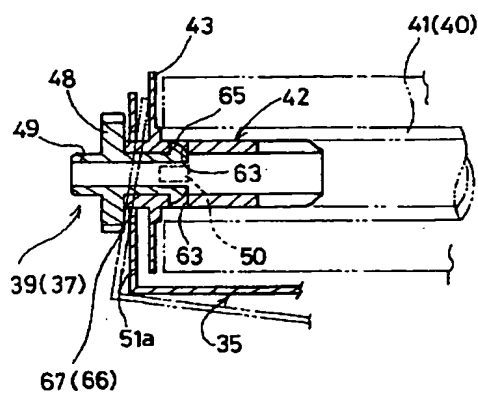
[Drawing 3]



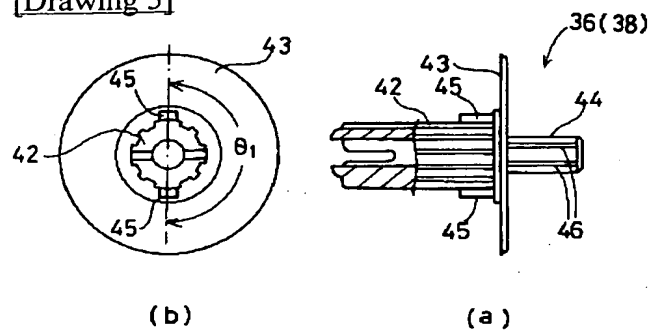
[Drawing 4]



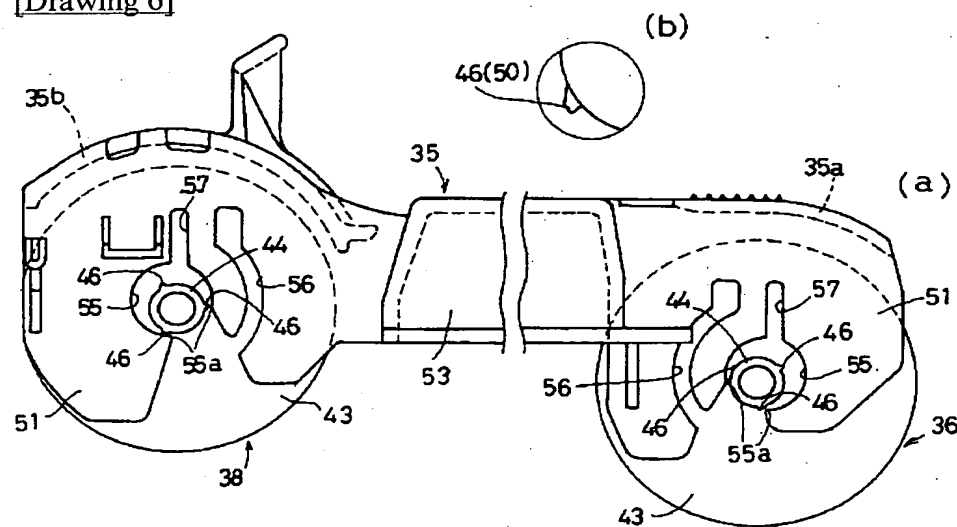
[Drawing 9]



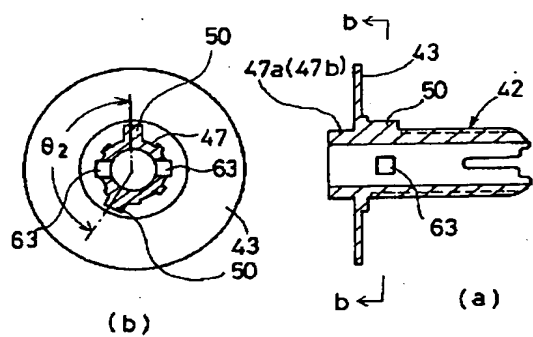
[Drawing 5]



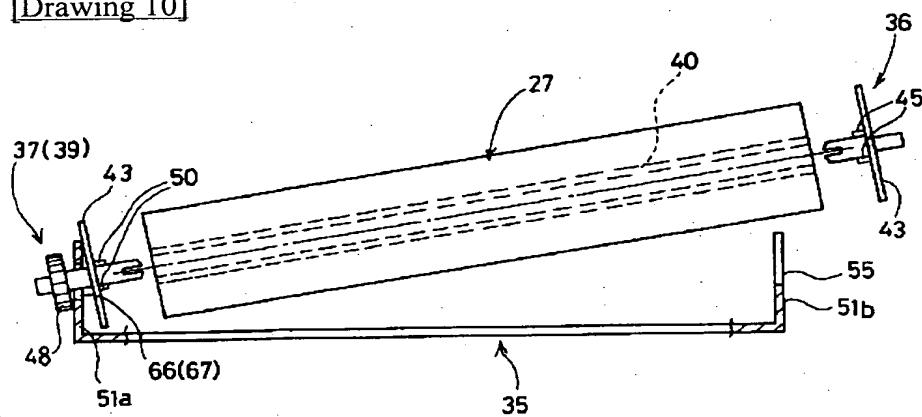
[Drawing 6]



[Drawing 8]



[Drawing 10]



[Translation done.]

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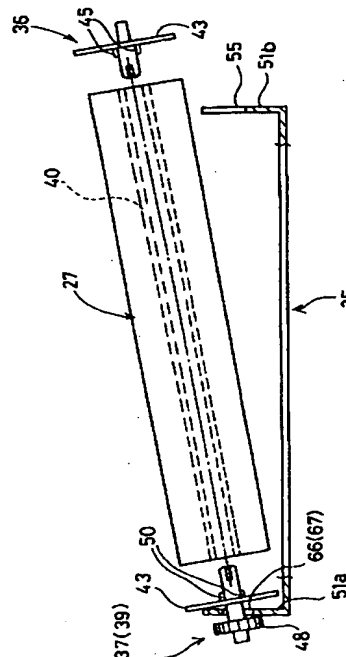
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(54) 【発明の名称】 インクリボンカートリッジ

(57) 【要約】

【課題】 インクリボン27の表裏及び巻取り側をケース本体35に対して正しく、且つ迅速に装着できるようにする。

【解決手段】 一方の面にインク層が形成された帯状のシート体とからなるインクリボン27を巻回する一対の管体40(41)の端部に着脱自在に装着する4つのスプール36~39のうち、歯車48付きのスプール37、39は、ケース本体35の一側板51aに穿設した丸孔66(67)を鍔部43と歯車48とで挟んだ状態で抜け不能、且つ遊嵌させる。鍔部43付きの他方のスプール36、38は、他方の側板51bに形成した一端開放型の軸支持溝部55に対して、着脱可能に遊嵌させる。



【特許請求の範囲】

【請求項1】 一対の管体と、該一対の管体に巻回され、一方の面にインク層が形成された帯状のシート体とからなるインクリボンと、

該インクリボンの管体の端部に着脱自在に装着する4つのスプールと、

該4つのスプールの回転軸部の支持部を備えたカートリッジ本体とにより構成されたインクリボンカートリッジであって、

前記カートリッジ本体の相対向して立設する両側板のうち一方の側板に穿設された円孔に、巻取り側の鐫付きスプールと、供給側の鐫付きスプールとを遊嵌且つ脱け不能に装着し、

前記他方の側板に形成した一端開放型の軸支持溝部には、巻取り側の鐫付きスプールと、供給側の鐫付きスプールとを着脱可能に遊嵌させるように構成したことを特徴とするインクリボンカートリッジ。

【請求項2】 前記一対の管体の合計4つの端面には、それぞれ2個の係合溝が形成され、

前記4つの端面のうち1つの端面における2個の係合溝と他の3つの端面における2個の係合溝とは、管体の軸心となす中心角度を相違するように設定され、

前記4つのスプールには、前記管体の端面における2個の係合溝に嵌合可能な2個の係合爪がそれぞれ設けられており、

前記一方の側板に抜け不能に装着されるスプールのうち一方のスプールにおける2個の係合爪は、他の3つのスプールにおける2個の係合爪とはスプールの軸心となす中心角度を相違するように設定されていることを特徴とする請求項1に記載のインクリボンカートリッジ。

【請求項3】 前記一方の側板に抜け不能に装着されるスプールは、前記鐫部を有する内筒部と、前記側板を挟んで前記鐫部と反対側に歯車を有する外筒部とに分離可能に構成されていることを特徴とする請求項1または請求項2に記載のインクリボンカートリッジ。

【請求項4】 前記一方の側板に抜け不能に装着される2つのスプールのうち一方のスプールにおける側板の円孔に嵌まる軸部の直径は、前記他の3つのスプールにおける前記円孔もしくは軸支持溝部に嵌まる軸部の直径より大径に形成したことを特徴とする請求項1乃至請求項3に記載のインクリボンカートリッジ。

【請求項5】 前記一方の側板に抜け不能に装着される2つのスプールのうち一方のスプールに付着もしくは塗布される色彩は、前記他の3つのスプールに付着もしくは塗布される色彩と異なるように設定したことを特徴とする請求項1乃至請求項4に記載のインクリボンカートリッジ。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】 本発明は、プリンタ等の記録

装置に使用するための、交換可能な幅広のインクリボンとを備えたインクリボンカートリッジの構造に関するものである。

【0002】

【従来の技術】 サーマルプリンタを用いて普通紙などに印刷する場合、交換の容易性及び取扱の簡便さから、通常はインクリボンカートリッジが用いられる。そして、サーマルプリンタがラインプリンタである場合、幅広のインクリボンを用いている。一般に、インクリボンは供給側及び巻取り側に芯としての管体に巻回され、その各管体の端部に鐫付きスプール（合計4個）を備えているが、消費されたインクリボンの交換毎にスプールも交換すると、資源の無駄使いとなるため、交換時には古いインクリボンからスプールを一旦取り外し、新しいインクリボンの管体に再度装着すると共にインクリボンカートリッジに装着することが行われている。

【0003】 ところで、インクリボンは、広幅のフィルム状のシート体の片面にインク層が形成されており、このインク層と被記録媒体である用紙とが対面するように、インクリボンカートリッジに配置しなければならない。そのため、インクリボンの交換に際して、前記インク層を有する面が正しい側になるようにインクリボンカートリッジに装着する必要がある。また、一般に、インクリボンの巻取り側及び供給側に位置するスプールは所定の動力を受けて回転駆動する必要があるため、この2つのスプールには歯車を備えるが、これらの歯車付きのスプールもインクリボンカートリッジの所定の箇所にセットされなければならない。

【0004】 そのための工夫として、本出願人は先に、特願平9-217号において、インクリボンの供給側及び巻取り側の芯としての各管体の両端面にそれぞれ切欠き形成した2個の係合溝の管体の軸心となす中心角度を、4つの端面のうち1箇所の端面におけるもののみ他の3箇所のものと相違するように設定した。そして、前記各管体の端面に係脱する4つの鐫付きスプールは、各々前記2個の係合溝に嵌まるように係合爪を突出形成するものであって、従って、1つの特定の鐫付きスプール（例えば巻取り側の片方におけるスプール）における2つの係合爪は、他の3つの鐫付きスプールにおける2つの係合爪とは、スプールの軸心となす中心角度が相違するように設定した。

【0005】 そのうえ、4つの前記鐫付き（歯車無し）スプールのうち、特定の1つの軸部の直径が他方の3つのもの直径より大きくなるように設定し、インクリボンカートリッジの側板に形成されて前記各スプールの軸部を回転可能に支持するための2つ割りの円孔の直径は、前記特定のスプールに対応する箇所のみ大きく、他の3箇所の2つ割りの円孔の直径は小さく同じ径に設定した。

【0006】 これらの構成により、前記特定のスプール

はインクリボンの筒体のうちの特定の箇所にもみ取付け可能であり、しかも、この特定のスプールが、インクリボンカートリッジの特定の箇所の円孔にもみ装着可能で、他の3箇所の円孔には嵌まることが不能となるので、インクリボンのインク層の有無(表裏)の逆取付けや、インクリボンカートリッジに対するインクリボンの装着誤まりが発生しないのである。

【0007】

【発明が解決しようとする課題】しかしながら、前記従来の構成であっても、新しいインクリボンの交換作業毎に、前記特定のスプールとインクリボンカートリッジにおける特定の装着箇所との組合せの発見を試行錯誤で繰り返す必要があり、そのために手間が掛かり、その作業が長く掛かると、インクリボンに皺寄ったり、破損する危険性も高くなるという問題があった。

【0008】本発明は、上記の問題点を鑑みて提案されたものであって、簡単な構造でインクリボンの交換作業を正確且つ迅速に実行できるインクリボンカートリッジを提供することを目的としている。

【0009】

【課題を解決するための手段】前記目的を達成するため、請求項1に記載した発明のインクリボンカートリッジは、一対の管体と、該一対の管体に巻回され、一方の面にインク層が形成された帯状のシート体とからなるインクリボンと、該インクリボンの管体の端部に着脱自在に装着する4つのスプールと、該4つのスプールの回転軸部の支持部を備えたカートリッジ本体とにより構成されたインクリボンカートリッジであって、カートリッジ本体の相対向して立設する両側板のうち一方の側板に穿設された円孔に、巻取り側の鍔付きスプールと、供給側の鍔付きスプールとを遊嵌且つ脱け不能に装着し、前記他方の側板に形成した一端開放型の軸支持溝部には、巻取り側の鍔付きスプールと、供給側の鍔付きスプールとを着脱可能に遊嵌させるように構成したものである。

【0010】また、請求項2に記載の発明は、請求項1に記載のインクリボンカートリッジにおいて、前記一対の管体の合計4つの端面には、それぞれ2個の係合溝が形成され、前記4つの端面のうち1つの端面における2個の係合溝と他の3つの端面における2個の係合溝とは、管体の軸心とをなす中心角度を相違するように設定され、前記4つのスプールには、前記管体の端面における2個の係合溝に嵌合可能な2個の係合爪がそれぞれ設けられており、前記一方の側板に抜け不能に装着されるスプールのうち一方のスプールにおける2個の係合爪は、他の3つのスプールにおける2個の係合爪とはスプールの軸心とをなす中心角度を相違するように設定されているものである。

【0011】そして、請求項3に記載の発明は、請求項1または請求項2に記載のインクリボンカートリッジにおいて、前記一方の側板に抜け不能に装着されるスプー

ルは、前記鍔部を有する内筒部と、前記側板を挟んで前記鍔部と反対側に歯車を有する外筒部とに分離可能に構成されているものである。さらに、請求項4に記載の発明は、請求項1乃至請求項3に記載のインクリボンカートリッジにおいて、前記一方の側板に抜け不能に装着される2つのスプールのうち一方のスプールにおける側板の円孔に嵌まる軸部の直径は、前記他の3つのスプールにおける前記円孔もしくは軸支持溝部に嵌まる軸部の直径より大径に形成したものである。

【0012】さらに、請求項5に記載の発明は、請求項1乃至請求項4に記載のインクリボンカートリッジにおいて、前記一方の側板に抜け不能に装着される2つのスプールのうち一方のスプールに付着もしくは塗布される色彩は、前記他の3つのスプールに付着もしくは塗布される色彩と異なるように設定したものである。

【0013】

【発明の実施の形態】次に、本発明の好ましい実施の形態を、図面を参照しつつ具体的に説明する。図1は本発明のインクリボンカートリッジ24を使用するファクシミリ装置1の側断面図、図2はインクリボンカートリッジ24の平面図、図3はインクリボンカートリッジ24の下面、図4(a)は図2の右側面図、図4(b)は図2の左側面図である。

【0014】先ず、ファクシミリ装置1の構造について概略説明する。なお、本実施例のファクシミリ装置1は、原稿8から画像等を読み取り、その画像データをファクシミリデータとして通信回線の一つである電話回線を介して他のファクシミリ装置に送信すると共に電話回線を介して他のファクシミリ装置から送信されたファクシミリデータを受信して記録用紙4にその画像を形成する、通常のファクシミリ装置としての機能の他、パーソナルコンピュータやワードプロセッサ等からプリンタケーブルまたは赤外線等の無線を介して伝送されてきたプリントデータを受けてそのデータに応じて画像を形成するプリンタとしての機能を有する。

【0015】ファクシミリ装置1の本体2の一側には、図示しない受話器が配置され、本体2の上面前部にはキースイッチ3aや液晶表示装置3bなどを有する操作パネル3が設けられている。また、本体2の上面後部には記録用紙4を斜め下向き状の立てた状態で積層して載置するための左右一対の給紙ガイド部5が、本体2の上面を覆うための回転可能なカバー体6の裏面に設けられ、本体2上面前後中途部には原稿台7が着脱可能に装着されている。

【0016】本体2内には、前記操作パネル3の下方位に、前記原稿台7からの原稿8を搬送するためのフィードローラ対9と、密着型イメージスキャナ部(CIS)10とその読み取り部の上側に配置した原稿押え体11と、排紙ローラ対12とが配置されている。また、前記給紙ガイド部5の下方には、給紙口13からの記録用

紙4を一枚ずつ搬送するための給紙ローラ15とその下周面にばねにて付勢された分離パッド16と、該分離パッド16よりも搬送上流側に積層された記録用紙4を給紙ローラ15の周面に押圧する押圧体17とからなる給紙部14が備えられている。

【0017】この給紙部14の下方には、記録部としてのローラ状のブラテン20と、該ブラテン20の下面向かってばね21により付勢されたサーマルヘッド22の印字台23と、該印字台23に跨がるように配置するインクリボンカートリッジ24とが配置されている。インクリボンカートリッジ24における後方の供給側リボンスプール25から前方の巻取り側リボンスプール26に巻回したインクリボン27は、サーマルヘッド22及びバネ板製のテンション体28の上面を通過し、巻取り側リボンスプール26の下周面側に至る。このとき、インクリボン27のインク面（インク層）は上面にあり、インクリボン27の上面（インク面）に重なる記録用紙4は、ブラテン20とサーマルヘッド22とが重合する印字部にて印刷されたのち、排紙通路30及び排紙ローラ対31を介して、前記給紙部14の上側の排紙部32上に排紙されるように構成されている。

【0018】次に、本発明に係るインクリボンカートリッジ24の構成について、図2～図7を参照しながら説明する。このインクリボンカートリッジ24は、カートリッジ本体としてのケース体35と、インクリボン27と、供給側リボンスプール25としての左右一対の供給側スプール36、37と、巻取り側リボンスプール26としての左右一対の巻取り側スプール38、39とにより構成されている。前記各スプール36、37、38、39は、例えば合成樹脂材の射出成形等にて一体的に形成されている。

【0019】インクリボン27は、広幅の樹脂フィルムの片面全体にインク層を形成したものであり、図2に示すように、一対の紙製の円筒状の管体40、41に巻回されている。インクリボン27のインク層に記録用紙4を対面させるようにして、ブラテン20とラインプリンタであるサーマルヘッド22の記録面とにより挟み込んで、画像データに応じてサーマルヘッド22の発熱体に通電することにより、1ラインずつ記録用紙4に画像が形成される。

【0020】図2に示すように、供給側の管体40及び巻取り側の管体41の各右端に嵌合する供給側右スプール36と巻取り側右スプール38とは、図3、図5

(a)及び図5(b)に示すように同一形状であって、前記管体40(41)の右端部内径に嵌まる内筒部42と、大径の鍔部43と、後述するケース体35に対して回転自在に配置される支持軸部としての小径の円筒状の外軸44とにより構成されている。そして、内筒部42と鍔部43との付け根部位には、管体40(41)の端面に切欠き形成された後述する2つの係合溝60、60

(下面図である図3参照)に嵌合して回り止めとなる2つの係合爪45、45が突出形成され、外軸部44の外周面には、その軸線方向に長い空転防止用の突条46が円周方向に適宜間隔にて複数突出形成されている。

【0021】供給側の管体40及び巻取り側の管体41の各左端に嵌合する供給側左スプール37と巻取り側左スプール39とは、前記管体40(41)の左端部内径に嵌まる内筒部42と、大径の鍔部43と、該鍔部43の外側に設けて後述するケース体35に対して回転自在に配置される支持軸部47a(47b)と、該支持軸部47a(47b)の外側に設けられた歯車部48付きの円筒状の外筒部49とにより構成されている。そして、前記各内筒部42、42の外周面には、前記管体40(41)の端面に切欠き形成された後述する2つの係合溝61、61(下面図である図3参照)に嵌合して回り止めとなる2つの係合爪50、50が突出形成されている。

【0022】なお、前記2つの管体40、41における4箇所端面に形成される2個ずつの係合溝60、60、61、61のうち、特定の一箇所(例えば、前記巻取り側左スプール39に嵌合する箇所)の2個の係合溝61、61は、管体40、41の軸線を挟む中心角度を120度程度とし、他の三箇所の2個ずつの係合溝60、60、61、61は、管体40、41の軸線を挟む中心角度を180度に設定する。これに対応するように、前記特定の1つのスプール、例えば、前記巻取り側左スプール39における2個の係合爪50、50は、その内筒部42の軸線を挟む中心角度 θ_2 を120度程度とし(図8(b)参照)、他の三つのスプール36、37、38における2個ずつの係合爪45、45、50、50は、その内筒部42の軸線を挟む中心角度 θ_1 を180度に設定する(図5(b)参照)。

【0023】このように構成すると、特定のスプールとしての前記巻取り側左スプール39は、前記2つの管体40、41における特定の端面(実施例では、図2において左下)の箇所にしか装着できないことになる。なお、他の3つスプール36、37、38は、2個の係合爪45、45及び2個の係合爪50、50の中心角度 θ_1 が等しいから、2つの管体40、41における前記特定の端面以外の3箇所の端面に嵌め入れることができる。

【0024】歯車付きスプールとしての、図2における供給側左スプール37と巻取り側左スプール39は、管体40、41の左端に嵌まり、前記鍔部43を備えた内筒部42と、歯車48を備えた外筒部49とに分離可能に構成されている。この構成を図7(a)、図7

(b)、図8(a)及び図8(b)を参照しながら、さらに詳述すると、内筒部42の鍔部43との付け根部位には、前述したように2個の係合爪50、50が一体的に突出され、且つ前記付け根部位には半径方向に貫通する2

つの取付け孔63、63が穿設されている(図8(a)及び図8(b)を参照)。そして、鏑部43を挟んで前記係合爪50と反対側の筒部である支持軸部の外直径は、特定のスプールとしての巻取り側左スプール39における支持軸部47bの方が、供給側左スプール37における支持軸部47aの外直径より大きく形成されている(図4(b)参照)。

【0025】他方、外筒部49には、前記各支持軸部47a(47b)の内径に嵌まる一対のアーム64、64を有し、この各アーム64の先端には、前記取付け孔63に係止できる係止爪65が半径外向きに一体的に形成されている。この構成により、外筒部49のアーム64、64をその弾性に抗して内筒部42の支持軸部47の内径に嵌合すると、係止爪65が取付け孔63に係止されて、不用意に分離できない構造となっている。

【0026】次に、カートリッジ本体としてのケース体35の構成について、図2～図4及び図6を参照して説明する。ケース体35は、インクリボン27の供給側の巻回部の上側を覆うための左右長手の供給側上カバー部35aと、インクリボン27の巻取り側の巻回部の上側を覆うための左右長手の巻取り側上カバー部35bと、これら供給側上カバー部35a及び左右長手の巻取り側上カバー部35bの左右両側を連結する連結片52、53と、左右両側板部51a、51a、51b、51bとにより構成され、例えば合成樹脂材の射出成形により一体的に形成されている。従って、供給側上カバー部35aと左右長手の巻取り側上カバー部35bと左右両側の連結片52、53とで囲まれた部位は、インクリボン27が露出する窓部54となり、該窓部54の上側からローラ状のプラテン20が臨み、窓部54の下方からは印字台23とサーマルヘッド22及びテンション体28が臨む。

【0027】そして、図2において右側の側板51bには、図4(a)及び図6(a)に示すように、2つの管体40、41における右端部に着脱自在に装着した供給側右スプール36と巻取り側右スプール38とにおける支持軸部としての外軸44、44がそれぞれ遊嵌する一端開放型の軸支持溝部55が形成されている。この一端開放型の軸支持溝部55は、下端部が下向き開放されるように切欠き形成されている。また、各右側板51bに切欠き形成された、軸支持溝部55より外周側に円周方向に沿った円弧状の弾力開放溝56及び半径外向きに長い弾力開放溝57により、各外軸44をその軸線が前記軸支持溝部55に対して略交叉する状態で上向きに押し込むとき、各軸支持溝部55の下部開放溝縁55a、55a間の幅寸法が弾力的に拡張するが、自由状態では各外軸44が各軸支持溝部55に対して脱落しないように、各外軸44の直径よりも各軸支持溝部55の下部開放溝縁55a、55a間の幅寸法が小さいものである(図6(a)参照)。

【0028】他方、図2において左側の側板51aには、図4(b)に示すように、2つの管体40、41における左端部に着脱自在に装着した供給側左スプール37における支持軸部47aが遊嵌し得る丸孔66と、巻取り側左スプール39における支持軸部47bが遊嵌し得る丸孔67とがそれぞれ穿設されている。そして、丸孔66より丸孔67の直径を大きく形成し、巻取り側左スプール39における支持軸部47bは、前記丸孔67には遊嵌できるが、丸孔66には入らないように各直径が設定されている。

【0029】この構成によるインクリボン27の交換作業について説明すると、まず、左側板51aにおける丸孔67の箇所に、特定の歯車付きスプールとしての巻取り側左スプール39を装着するには、左側板51aの内側に鏑部43を接近させて内筒部42の支持軸部47bを丸孔67に嵌め入れた後、左側板51aの外側から歯車48付きの外筒部49のアーム64を前記支持軸部47bの内径部に嵌め入ると、各アーム64の先端の係止爪65が内筒部42における取付け孔63に係止して、巻取り側左スプール39が側板51aから外れないようになる。

【0030】次いで、歯車付きのスプールである、供給側左スプール37における内筒部42の鏑部43を接近させて支持軸部47aを丸孔66に嵌め入れた後、左側板51aの外側から歯車48付きの外筒部49のアーム64を前記支持軸部47aの内径部に嵌め入ると、各アーム64の先端の係止爪65が内筒部42における取付け孔63に係止して、供給側左スプール37も外れないようになる。

【0031】そして、直径の大きい支持軸部47bを有する巻取り側左スプール39は、左側板51aの特定の箇所である丸孔67の位置にのみ装着でき、他の箇所には装着不可能であるから、特定の1つスプール、例えば、巻取り側左スプール39のケース本体35に対する装着位置が特定されることになる(図3及び図4(b)参照)。この巻取り側左スプール39における2個の係合爪50、50の軸心とのなす中心角度 $\theta 2$ は略120度であるから、インクリボン27における一方の管体41の左端に形成された2個の係合溝61、61(中心角度略120度のもの)のみを嵌め入れることができる。

【0032】他方、歯車付きの供給側左スプール37における2個の係合爪50、50の軸心とのなす中心角度 $\theta 1$ は180度であるから、インクリボン27における他方の管体40の左端に形成された2個の係合溝60、60(中心角度180度のもの)のみを嵌め入れることができる。これにより、インクリボン27の表裏及び巻取り方向を間違えることなく、当該インクリボン27の左側とケース本体35の左側との位置関係を特定させて装着することができる。

【0033】また、これらの歯車付きのスプールである

供給側左スプール37及び巻取り側左スプール39における支持軸部47a、支持軸部47bの直径は取付け孔66、67の直径より小さいから、図9及び図10に示すように、各スプール37、39の軸線を側板51aに対して直角でなく傾斜させることができる。従って、図10に示すように、ケース本体35の供給側上カバー部35a、巻取り側35bを下向きにした状態にて、供給側左スプール37、巻取り側左スプール39をケース本体35から取り外すことなく、且つこれら供給側上カバー部35a及び巻取り側上カバー部35bにインクリボン27の巻回の外径がつかえずに装着できるのである。

【0034】次に、前記インクリボン27の管体40、41の右側に対しては、係合爪45、45が同一の中心角度を有する供給側右スプール36及び巻取り側右スプール38のいずれを装着しても良く、この後、ケース本体35の右側板51bにおける各軸支持溝部55、55に対して供給側右スプール36及び巻取り側右スプール38の外軸44の部分を押し込めれば良い。

【0035】上記の構成のインクリボンカートリッジ24をファクシミリ装置1の本体フレーム（図示せず）の左右両側に対して装着すると、カートリッジ本体としてのケース体35の左右両側の連結片52、53等の箇所が所定姿勢で支持される。このとき、巻取り側左スプール39及び供給側左スプール37における外筒部49、49の内径部が図示しない前記本体フレーム側に突設された軸部等に回転可能に支持されると共に、歯車部48、48はそれぞれ動力伝動用のギヤ（図示せず）に噛み合う一方、供給側右スプール36と巻取り側右スプール38における外軸44、44の内径部は、前記本体フレーム側から軸線方向に弾力的に突設された軸部（図示せず）に被嵌する。

【0036】これにより、図4（b）に示すように、ケース体35の左側板51aにおける各丸孔66、67の内周面に対して、前記巻取り側左スプール39及び供給側左スプール37における支持軸部47a、47bがほぼ同心円状に配置される。また、図4（a）に示すように、ケース体35の右側に突出する外軸44、44は右側板51bにおける各軸支持溝部55の内周面とほぼ同心円状に配置され、且つ各外軸44、44の外周の全ての空転防止用の突条46は各軸支持溝部55の内周面に対して干渉しない（摺接しない）ように配置される。

【0037】この結果、供給側リボンスプール25及び巻取り側リボンスプール26は円滑に回転し得ることになる。他方、インクリボンカートリッジ24をファクシミリ装置1から取り出すべく、使用者がカートリッジ本体としてのケース体35を中空に浮かすと、図6（a）に示すごとく、インクリボン27等の自重により、供給側右スプール36と巻取り側右スプール38における外軸44、44が側板51bにおける各軸支持溝部55の下部開放溝縁55a、55a側にずり落ちる。この結

果、各外軸44の外周面における突条46が各軸支持溝部55の円弧状の内周面と交差する下部開放溝縁55a、55aに引っ掛かるから、スプール36、38は不用意に回転せず、これらスプールに巻回されているインクリボン27は大きく弛むことがないのである。

【0038】なお、前記インクリボンカートリッジ24を供給側上カバー部35a及び巻取り側上カバー部35bを上にしてテーブル（図示せず）等に載置したときには、カートリッジ本体としてのケース体35の自重により、前記供給側右スプール36と巻取り側右スプール38における外軸44、44に対して側板51bにおける各軸支持溝部55が下がる結果、当該各軸支持溝部55の円弧状内周面上側の弾力開放溝57との交叉縁部に前記外軸44外周の突条46が引っ掛かるから、スプール36、38は不用意に回転せず、このときもインクリボン27が大きく弛むことがない。

【0039】前記インクリボンカートリッジ24を供給側上カバー部35a及び巻取り側上カバー部35bを下にしてテーブル（図示せず）等に載置する等しても、前記と同様にスプール36、38は回転しない。図8

（b）は、前記突条46の形状の一例を拡大して示したものである。このようにして、プリンタに着脱する際や、インクリボンカートリッジを単体でテーブル等に放置したとき、さらには作業者が手で持って揺り動かしたときには、インクリボンを巻回しているスプールがカートリッジに対して不用意に大きく回転せず、インクリボンが弛んでしまうことを防止できるのである。

【0040】前記カートリッジ本体としてのケース本体35の所定箇所に対する特定のスプールとしての巻取り側左スプール39を位置を間違えずに装着できるようにする手段として、前記の構成に代えてもしくは前記構成に加えて、前記側板51aの丸孔67を有する箇所の外面もしくは内面又は両面の一部分乃至全部に特定の色（例えば赤色）に着色もしくは塗装し、対応するスプール39もその一部分乃至全部に同じ色に着色もしくは塗装する一方、他の3つのスプール36～38はその一部分乃至全部に緑等（前記赤色と異なる色）に着色もしくは塗装する。しかも、管体41の左端も、赤色の着色もしくは塗装しておけば、作業者は、同じ色の部分（部品）同士の配置により、表裏及び巻取り方向を正しくしてインクリボン27をカートリッジ本体としてのケース本体35に装着することが至極簡単にできる。これに加えて、ケース本体の左右側板も異なる色に着色もしくは塗装するようにしても良い。

【0041】なお、使用済のインクリボンの交換に際して、インクリボン27を巻回した管体40、41から左右両側のスプール36～39を取り外して再度新しいものに付け替えることができるから、非常に経済的である。上記実施形態では、本発明のインクリボンカートリッジをファクシミリ装置に用いたが、もちろんこれに限るものでは

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【図9】側板を挟んで内筒部と外筒部とを装着した状態の断面図である。

【図10】インクリボンの装着作業を示す一部切欠き正面図である。

【符号の説明】

2.4 インクリボンカートリッジ

2.7 インクリボン

3.5 カートリッジ本体としてのケース体

3.6～3.9 スプール

4.0, 4.1 管体

4.2 内筒部

* 4.3

鋳部

4.4 支持軸部としての外軸

4.6 突条

4.8 歯車部

4.9 外筒部

5.0 係合爪

5.1 a, 5.1 b 側板

5.5 軸支持溝部

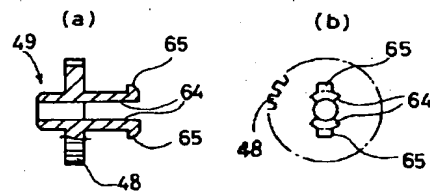
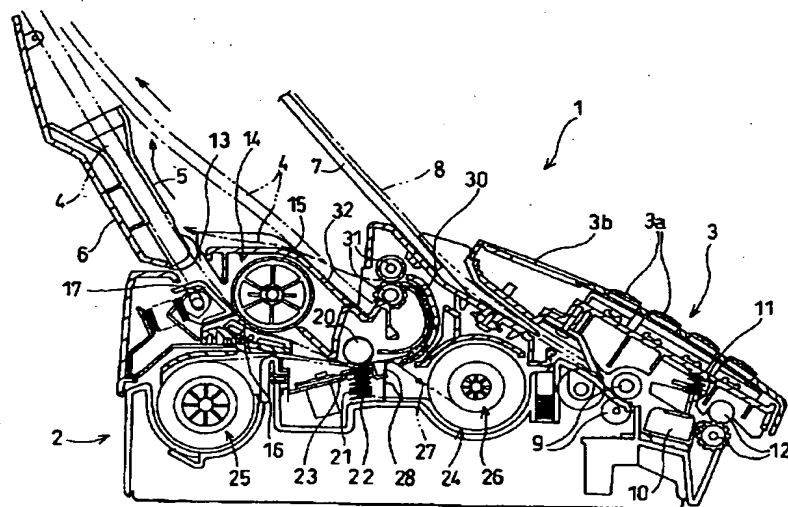
6.0, 6.1 係合溝

10 6.3 取付け孔

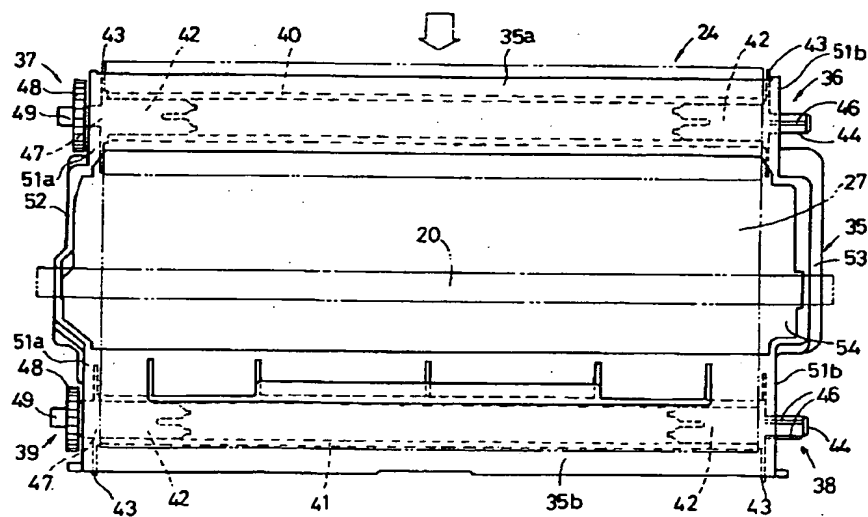
* 6.6, 6.7 丸孔

【図1】

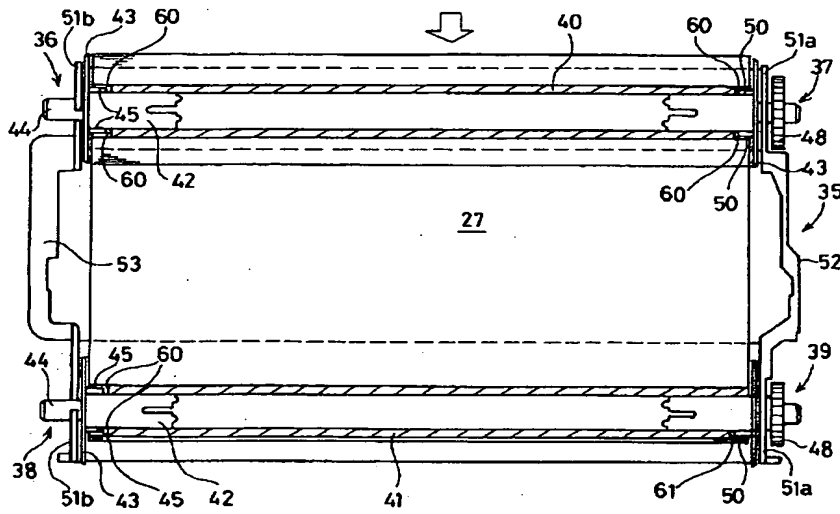
【図7】



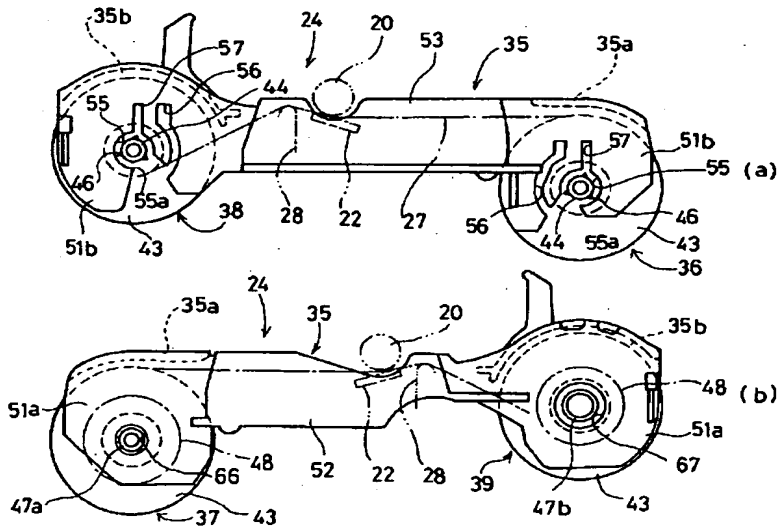
【図2】



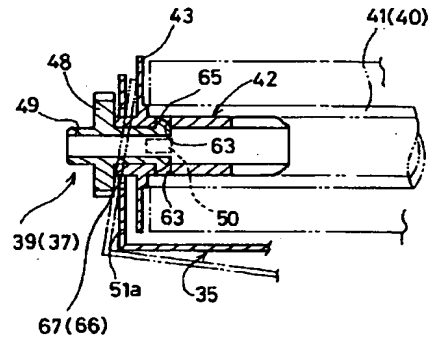
【図3】



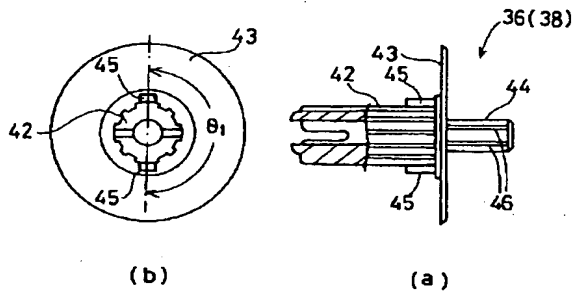
【図4】



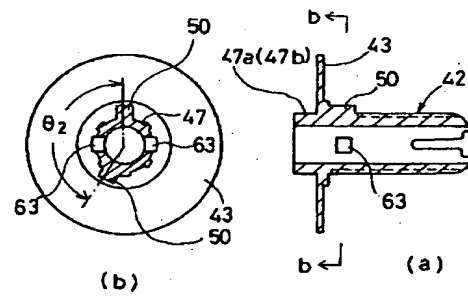
【図9】



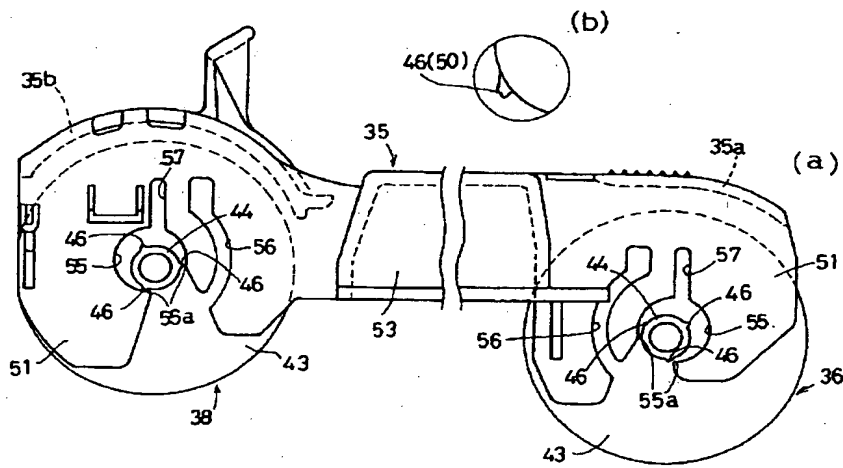
【図5】



【図8】



【図6】



【図10】

